

Cold Dust in the Milky Way

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Cold dust in the Milky Way can be revealed through its far-infrared and submillimeter continuum emission, as long as there is a heating source that elevates the grain temperature above that of the cosmic microwave background radiation. The COBE FIRAS instrument observed the entire sky, generating far-infrared spectra with its 7 degree beam. In the galactic plane, the spectra can be decomposed into a 'warm' component, characteristic of normal dust heated by the interstellar radiation field, a cold component, characteristic of dust shielded from the radiation field, and a very cold component of uncertain origin. The warm and cold components are well traced by the other COBE far-infrared instrument, DIRBE, in a 0.7 degree beam. Using the DIRBE maps, the dust temperature can be traced at higher resolution and the dust distribution can be compared to that of the atomic and molecular gas. We discuss the distribution of dust and its temperature, relative to galactic location and the distribution of gas, and what little is known about the submillimeter excess emission attributed to the 'very cold' component of the interstellar spectra.